

TECHNICAL MANUAL

ACCEPTANCE/FUNCTIONAL CHECK FLIGHT AND

MAINTENANCE OPERATIONAL CHECKS

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1. PURPOSE.

1.1. This Technical Order (TO) establishes policy and criteria to perform maintenance operational checks and Functional Check Flights (FCF) on USAF aircraft (after accomplishing inspection or maintenance to assure that the aircraft is airworthy and capable of mission accomplishment). It also identifies criteria to be used by USAF in accepting new production aircraft and guidelines for conducting Acceptance Check Flights (ACF). Throughout this TO, procedures apply to FCF and ACF if neither is specified.

1.2. Submit proposed changes to this technical order through the major command to OO-ALC/LCEI, 6057 Elder Lane, Hill AFB, UT 84056-5811 with an information copy to HQ AFMC/DOV, 508 W Choctawhatchee Ave Suite 4, Eglin AFB FL 32542-5713.

2. SCOPE.

This T.O. applies to all commands, field operating agencies, and direct reporting units of the USAF, Air Force Reserve Command, the Air National Guard, and Air Force contractors involved in the manufacture of new production aircraft, having bailed aircraft, or processing aircraft on contract for maintenance, modification or removal from storage.

3. MAINTENANCE OPERATIONAL CHECKS.

3.1. Maintenance operational checks are checks accomplished on the ground to assure that aircraft systems or components, which have been disturbed during inspection or maintenance operations, have been repaired, reassembled, or adjusted satisfactorily.

3.2. These checks will be accomplished to simulate, insofar as possible, the conditions under which the system or component will be operated. The affected equipment will be operated through a sufficient number of cycles to assure that the aircraft is safe for operational use.

3.3. Maintenance operational checks involving ground or hover taxi of helicopter or high-speed taxi of fixed wing aircraft will be accomplished and certified by pilots qualified as specified in paragraph 5.1. Pilots performing high-speed taxi checks will compute takeoff data to indicate the highest speed expected and the planned stopping distance.

3.4. Maintenance operational checks will be recorded on the AFTO Form 781A and/or AFTO Form 349 and/or CAMS in accordance with T.O. 00-20-1 and the 00-20-2 series technical orders.

3.5. Acceptance inspections on newly produced weapon systems, major system modifications, or upgrades, will be accomplished on receipt at either test or operational locations for the purpose of assuring proper configuration control and to provide feedback to the developing command and contractors concerning manufacturing quality assurance.

4. CHECK FLIGHTS.

4.1. Check flights are performed to determine whether an aircraft and its various components are functioning according to predetermined specifications while subjected to the flight environment. Such flights are conducted when it is not feasible to determine safe or required operation (aerodynamic reaction, air loading, signal propagation, etc.) by means of ground or shop tests. Equipment operating procedures, limit pressure readings, and conditions to be noted and recorded during FCF are normally specified in the -6CF Acceptance/Functional Check Flight Procedures Manual. The FCF is normally conducted following maintenance work and prior to release of the aircraft for operational use. For the purpose of this instruction, primary aircraft systems are those affecting engines; flight controls; landing gear; and those systems affecting the IFR capability of the aircraft (i.e., pitot static; compasses; attitude references, air data computers, etc). ACF is conducted to determine compliance with contractual requirements.

4.2. Conditions requiring an FCF are specified in the –6 TO for each type of aircraft. Time Compliance Technical Orders (TCTO) may also require a FCF for work accomplished in accordance with the TCTO. In the event the aircraft manufacturer does not provide guidance as to what maintenance actions require a functional check flight, then the MAJCOM/LG will develop an FCF/maintenance action guidance matrix for use by the field.

4.3. Under circumstances other than those specified in the aircraft –6 inspection manual, the need for an aircraft FCF following maintenance or repair work is an engineering decision to be exercised by the commander. Such a decision will be based upon the scope of work accomplished and consideration of the affected components relative to safety of operation.

4.4. Any flight performed to accept or check accomplishment of depot maintenance, contract maintenance or modification will be identified as an FCF. Any modification or TCTO that affects a primary aircraft system as defined in paragraph 4.1 will be identified as an FCF.

4.5. Any flight performed to accept or check new aircraft production will be identified as an ACF. Normally all –6 and –6CF requirements will be completed, however procedures developed by the contractor and approved by the government may be used.

4.6. Check flights will:

4.6.1. Be conducted at power settings within the limits specified in flight operating flight manual/publication.

4.6.2. Be conducted within the designated check flight airspace of the base from which the flight was launched except when the flight must be conducted under specific environmental conditions not compatible with local conditions and/or restrictions. This does not preclude departing from an auxiliary field or base within the home station designated check flight airspace and recovering at home station.

4.7. Combat and combat support aircraft assigned to units engaged in armed conflict, which have had temporary repairs made at an auxiliary or recovery base, may have an FCF accomplished enroute to home station or a designated repair facility. The FCF portion of the flight will be accomplished in the immediate area of the departure base to determine that the aircraft is airworthy for the flight. The decision to approve combined FCF and ferry flight is the responsibility of the wing commander of the unit to which the aircraft is assigned, in coordination with the wing or equivalent commander of the unit where the repair is accomplished. Prior to approval the following should be considered: pilot proficiency, route of flight, weather conditions, extent of repair, and conditions under which the repairs were accomplished. Authority to approve combined FCF and ferry flights will not be delegated. The wing or equivalent commander shall have the option to conduct combat aircraft functional check flights with loaded and charged internal gun systems in a hostile environment.

4.8. The wing or equivalent commander may authorize a combination of FCF with mission or training flights if the FCF is being flown to check the operation of auxiliary systems or components provided the requirements of paragraph 4.1 are met. Mission or training events may be accomplished at the end of a FCF provided the primary aircraft systems as defined in paragraph 4.1 are checked and verified as functional.

4.9. Commanders or their maintenance officers may expand the scope of FCF requirements. During the crew briefing, the FCF items/scope will be mutually understood.

4.10. Major commands may waive FCF only under extenuating circumstances, such as when weather delays would seriously degrade combat potential or preclude meeting operational mission requirements.

4.11. Duplication of ACF by the USAF and contractors will be held to a minimum. The USAF should use flight test sampling when a contract's production quality levels permit.

5. AIRCREW REQUIREMENTS.

5.1. Check flights will be accomplished by aircrew possessing the best qualifications as determined by command directives and flying unit commanders. Check flights accomplished on USAF aircraft by contractor personnel in the performance of contractor maintenance requirements will be performed by flight crews qualified in accordance with the provisions of DCMA Instruction 8210.1, *Contractors Flight and Ground Operations*, or earlier version as defined by contract.

5.2. Check flights will be conducted by the minimum aircrew defined by T.O. and MAJCOM directives plus any Mission Essential Ground Personnel (MEGP) required to perform check flight duties or to accomplish inflight requirements. Check flights will be accomplished without cargo or nonessential passengers/crewmembers (as determined by the OG/CC or equivalent).

5.3. Major commands will determine FCF crew complement and certification. These crewmembers will be designated in writing.

6. WEATHER REQUIREMENTS.

6.1. Check flights will normally be conducted in daylight, under Visual Meteorological Conditions (VMC). Aircraft with four or more engines may conduct check flights during hours of darkness if VMC exists at the departure airfield.

6.2. The operations group (or equivalent) commander to which the aircraft is assigned (for transient aircraft, the wing or equivalent commander at the transient base) may waive paragraph 6.1 and authorize FCF under the following conditions, when required:

6.2.1. A takeoff in VMC to begin the check flight. If the aircraft is operating properly in VMC, pilots may proceed into Instrument Meteorological Conditions (IMC) to penetrate cloud cover and complete the check flight in VMC conditions above the clouds.

6.2.2. Weather conditions versus the necessity to conduct a check flight must be considered.

6.3. When a flight is required only to check the operation of auxiliary systems or components, the flight may be initiated during daylight hours under IMC or during hours of darkness under VMC provided:

6.3.1. The aircraft is known to be operational for night or IMC flight as appropriate.

6.3.2. Failure or malfunction of the component or system to be checked would not affect operation of the aircraft at night or under IMC, as appropriate.

6.3.3. The check flight portion of the flight can be accomplished under VMC or VMC conditions above the clouds.

7. FLIGHT DURATION.

7.1. FCF duration for engine changes is specified in the -6 T.O. These are minimum times based on the time required to accomplish the functional checks prescribed in the applicable FCF checklist.

7.2. Duration of a flight to complete a specified inspection is the time necessary to accomplish the checklist, determine that the affected equipment is operating properly, and assure the aircraft is airworthy and capable of mission accomplishment.

7.3. Duration of flights for other conditions will be determined by the responsible maintenance officer or pilot but must be sufficient duration to accomplish the checks specified in the checklist at specified altitudes.

7.4. The FCF should not takeoff unless sufficient time is available to complete the required elements as defined in the -6CF and IAW paragraph 6.1

8. FLIGHT DOCUMENTATION.

8.1. FCF and release of aircraft for operational use are recorded in the AFTO Form 781 series and/or on AFTO Form 349 and/or CAMS in accordance with T.O. 00-20-2 and the 00-20-1 series technical orders.

8.2. The FCF/ACF pilot is responsible to see that all discrepancies noted by the flight crew before, during, and after flight are recorded on the AFTO Form 781A, or on the contractor form approved by the Government in accordance with T.O. 00-20-1.

9. FLIGHT CHECKLISTS.

9.1. USAF FCF checklists are issued for each type, model, or series aircraft for which a –6 T.O. exists. These checklists specify minimum requirements for accomplishment of FCF. Use of the entire checklists is required only when a complete check flight is accomplished. Locally developed checklists may be used for aircraft that do not have a published checklist. Units may develop local checklist guides to accommodate local airspace configuration, weather, etc., to facilitate the smooth flow of the mission. Once the mission is complete, transcribe the results into the –6CF published checklists (if available) for inclusion in the aircraft documentation folders. Locally developed FCF results worksheets may be used in lieu of the published FCF checklist. These worksheets must capture the pertinent information from the FCF checklist and contain all signature and FCF sign-off information. Contact the applicable TO manager for approval to use FCF worksheets.

9.2. ACF checklists may be developed by the contractor or the Government. They are approved by the Government. These checklists specify minimum requirements for accomplishment of ACF.

9.3. FCF checklists are divided into sections pertaining to particular stations and flight crewmembers. Crewmembers will use the specified symbols to complete the checklists or section of the checklist applicable to their station and/or equipment. When check flights are accomplished to check specific equipment or systems, only applicable portions of the checklists will be used. The AFTO Form 781A may also be used to record and verify accomplishment of specific checklist requirements of partial check flights. Upon completion of the check flight, the pilot in command will sign the checklist to indicate that they have completed the inspection requirements. Government approved procedures apply for ACF.

9.4. Completed FCF checklists or approved FCF results worksheets are filed with the aircraft maintenance records for a period of three months or until replaced by a new FCF checklist/worksheet, whichever is later. Copies of worksheets used in place of an AFTO Form 781A to report FCF discrepancies are filed and disposed of in accordance with T.O. 00-20-1. Checklists containing classified information entries may be treated as classified waste immediately following debriefing under the provisions of AFI 31-401, *Information Security Program Management*. The responsible crewmember will sign a certificate stating that all required equipment checks were made and were satisfactory, and the certificate will be filed instead of the classified checklists. Government approved procedures apply for ACF.